



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/769,534 | 01/30/2004 | Alejandro Hurtado | 42P17764 | 8641 |
| 8791 | 7590 | 04/18/2005 | EXAMINER | |
| BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030 | | | HA, NATHAN W | |
| | | ART UNIT | PAPER NUMBER | |
| | | | 2814 | |

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

| | | |
|------------------------------|--------------------------|--------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/769,534 | HURTADO, ALEJANDRO |
| | Examiner Nathan W. Ha | Art Unit 2814 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 January 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 and 14-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8 and 14-27 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-8 and 14-27 in the reply filed on 1/24/05 is acknowledged.
2. Cancellation of claims 9-13 is acknowledged.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 14, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Ueda et al. (US 2002/0001688, hereinafter Ueda).

In regard to claims 1, 14, and 23, in fig. 1, Ueda discloses a method of making a device method comprising:

selecting a dicing tape 3 with an adhesive layer 3 that has a thickness greater than a height of one or more bump electrodes 5 of a wafer 1; and
applying the dicing tape to the wafer such that the adhesive layer conforms to the one or more bump electrodes.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-5, 7-13, 15-20, 22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda as applied to claims 1, 14, and 23 above, and further in view of Kojima et al. (US 2002/0161100, hereinafter, Kojima.)

In regard to claims 2, 15, and 24, Ueda discloses all of the claimed limitations as mentioned above, except the wafer (substrate) is a double bumped wafer.

Kojima, in fig. 29, discloses an analogous device with a double bumped wafer (substrate). This substrate provides better connections to the external devices since connections can be made through the wafer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the substrate as taught by Kojima in order to facilitate connections between devices.

In regard to claims 3, 18, and 25, the adhesive or filler is formed by pressure roller in order to provide better adhesion between layers. Ueda also teaches using pressure roller to form adhesive sheet ([0042]).

In regard to claims 4, 7-8, 19, and 22, Ueda further discloses the adhesive layer is a radiation sensitive layer since it can be cured by an ultraviolet ray (section [0049].)

Furthermore, it should be noted that the adhesive 2 is radiated by an ultraviolet ray to a certain thickness as discussed in claim 5, the sheet should have the same property as claimed in claim 8.

In regard to claim 16, see the discussion above regarding to claims 1, 14, and 24.

In regard to claim 17, Ueda further discloses the adhesive layer conforms the electrodes, fig. 1.

In regard to claims 5, 20, and 26, the above combination discloses all of the claimed limitations as mentioned above. Ueda further discloses that the thickness of the bumps and the wafer vary from 10-200 microns and 5-250 microns, respectively.

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the thickness because applicant has not disclosed that these thicknesses provide an advantage, is used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either shape because they perform the same function of positioning the module to the substrate.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Ueda and Kojima's combination to obtain the invention as specify in the above claims.

Indeed, it has been held that mere dimensional limitations are *prima facie* obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ

143 (CCPA 1976); Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

7. Claims 6, 21, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda and Jokima as applied to claims 1, 14, and 23 above, and further in view of Milla et al. (US 2003/0180987, hereinafter, Milla).

In regard to claims 6, 21, and 27, the above combination discloses all of the claimed limitations as mentioned above. Ueda further discloses mounting the wafer on a support member 4 and dicing the wafer into individual chips (claim 52). The combination, however, does not expressly disclose using dual-blade in the dicing process.

Milla, In fig. 4f, discloses an analogous device including element 416 and the chip 422. Milla further discloses using dual blade to dice the wafer in wafer saw 418 to prevent cracking and speed up the cutting process (section [0033]).

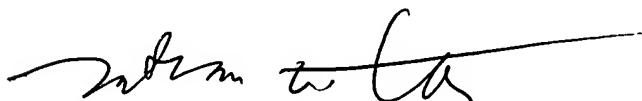
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use dual-blade saw as taught by Milla in order to prevent cracking and speed up the cutting process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nathan Ha
April 11, 2005